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THE PLATEAU OF BRITISH EAST AFRICA
AND ITS INHABITANTS

BY

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COASTAL PLAIN

The British East Africa Protectorate, like all of the contiguous territory, is a great plateau which averages several thousand feet above sea level. The plateau is fronted by a narrow coastal plain of uplifted coral rock, porous and brecciated in character, and reduced by marine erosion to a flat, featureless plain. The plain varies in width from two to ten miles and on the average is about thirty feet above the sea. It is covered by a thin residual soil on which a tropical jungle subsists. Bird and animal life is abundant and in certain small areas the plain is thronged with natives. The shore line of this plain is relatively smooth, and consists of low cliffs alternating with beaches of coralline sand. A number of minor oscillations have affected the coast belt in recent geological time, the last of these movements being a negative one, resulting in the drowning of stream debouchures and the consequent formation of wide and irregular estuaries. These estuaries, or so-called lagoons, cause most of the irregularities in the coast line, and give rise to the only safe type of harbor to be found on the east coast of Africa. Kilindini harbor, at the south end of Mombasa island, one of the most commodious and splendid harbors in the world, results, for example, from the drowning of several small streams which enter the sea in close proximity.

The east coast of Africa is one of the world's great coral regions. The coast pilots say that, with a few interruptions, such as that off the mouth of the Zambesi river, the coral extends from Somaliland southward to the neighborhood of Delagoa Bay, a distance of over 2,000 miles. Reefs obstruct the entrances to all harbors to such an extent that access is generally difficult, and thus the prosperity of the whole region is seriously menaced. Both fringing and barrier reefs are in process of formation in great numbers off the East African coast. In general they lie parallel to the shore, and in many instances have been built up to the surface of the water, so that sand is accu-

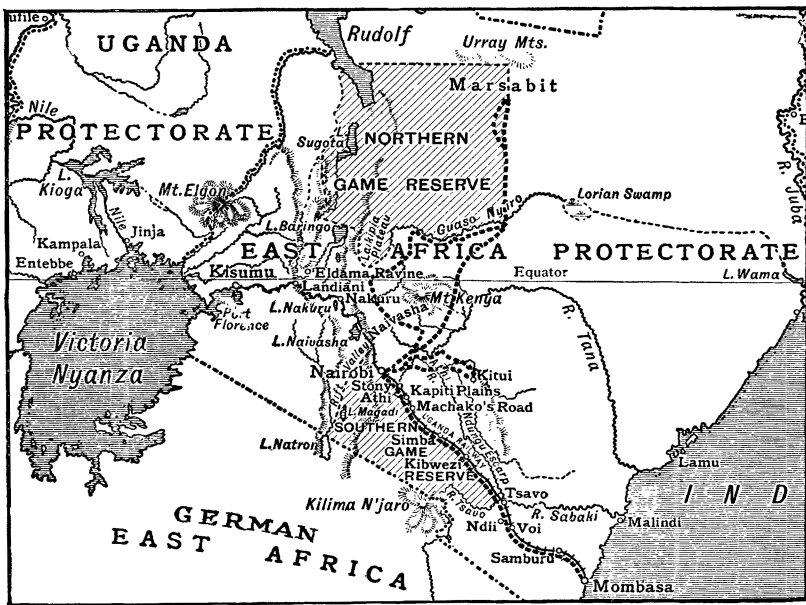


FIG. 1.—British East Africa.

mulating upon them. This is true of barrier reefs several miles from shore, as may be seen between Zanzibar and Mombasa. A slight elevation of the sea bottom would extend the coastal plan seaward for several miles.

The coastal plain is well adapted for agriculture, especially fruit raising, when once it is cleared of the forest covering. The natives have in many instances thus cleared small patches or shambas for the purpose of supplying the native markets with various products of the soil. Nevertheless, the population is still small and the resources of the plain are poorly developed. For example, Mombasa,

the most important port of East Africa, has been for centuries a center of trade and of Arab and European influence, yet it is still possible to shoot buffalo, elephants and other forms of large game within a radius of eight or ten miles of this long settled community.

PEOPLE OF THE COASTAL PLAIN

Arabs and Indians have succeeded in securing the most desirable agricultural areas and have dispossessed the weaker and less intelligent negro native and forced him into other types of employment. The negro is not the only one, however, who is losing ground. The Arab, who has been in the land for centuries, is being steadily and mercilessly displaced by Goanese and East Indians, who are coming to British East Africa in large numbers. An interesting transference of allegiance from the old Arab master to the new and more resourceful Hindu master is taking place at the present day.

It is a pity from many standpoints that the unscrupulous though skillful Indian has come to East Africa in such numbers. The negro is adjusted to the Arab, his ideas and his methods, he knows how to accept him and what to expect from him. He is yet to be adjusted to this new human environment, and what the outcome of this new relationship is to be is now difficult to predict. The Indian is but a careless and indifferent workman and serious complaint of his inefficiency and slovenliness is to be heard all along the Uganda railroad, where he is largely employed. This sort of an example is bad for the negro. The Indian is not the kind of civilizer the native needs in his present stage of development. The forced contact of the two races in the last decade or two has raised a serious problem for the British Government.

Most of the natives who live on the coastal plain are Swahilis of mixed Negro and Arab descent. Although the Arab has been a curse to the African, yet in many ways he has been a blessing, even though it be in disguise. For example, he has changed the coast negro from a dirty, inefficient savage to a well clothed, law abiding, resourceful laborer. The Swahili, to quite a degree, has dropped his Mumbo-Jumbo religion, his fetishism and his charms and has taken on, outwardly at least, a more advanced type of religion in the form of Mohammedanism. The change, however, is in many ways only skin deep. It is rare, for instance, to see a native praying with his face Mecca-ward or in any other direction, as compared with his Arab or Indian neighbor, yet even thus he has advanced religiously, thanks to his Arab mentors. The coast Swahili has in many ways adapted himself to sea conditions. For instance, he is a good navi-

gator and boatman, and a great fisherman. As a natural result he is employed frequently on the liners plying between East Africa and Europe or India. The infusion of Arab blood in his veins has apparently given him certain qualities of leadership and of organization, as well as certain commercial tendencies, which are largely wanting in the timid, unaggressive native of the interior. The Swahili language has borrowed an extensive vocabulary from the Arabic, and has become the *lingua franca* of East Africa, indispensable to all who travel or trade in that land. The Swahili is thus at a great advantage over other natives, and has therefore become a



FIG. 2.—In the Native Village. Mombasa.

necessary factor in the organization of safaris, or expeditions into the interior, and in much of the native commerce of the country.

The houses of the natives on the coastal plain illustrate not alone the characteristics of their architecture but show how the native is able to use whatever material happens to be at hand. The houses consist of a frame-work of poles tied together with bark. The space between the poles is filled in with mud and fragments of coral rock, while the roof is thatched with leaves obtained from the groves that surround the habitations. Almost the only article of furniture is the bed, a rectangular frame of poles placed on four legs, with native cord stretched across at intervals much after the fashion of the old cord beds of our fathers.

What has been said above applies only to certain parts of the coastal plain. Many portions are not inhabited save by wandering

tribes, who stay but a few days in any given locality. Except on the sea coast and along the Uganda railway and the old caravan routes, much of the plain is a real *terra incognita*.

THE PLATEAU

The plateau rises from the coastal plain somewhat abruptly to a height of 200 feet, then, by a gradient which is on the whole more gradual, to a height of 8,000 to 10,000 feet at the crest of the escarpment on the western side of the Rift Valley, 450 miles from the Indian ocean. From this lofty summit there is an abrupt descent into the Nile basin, for it is to be remembered that the Nile valley is carved out of this great plateau.

The rainfall over much of the region under discussion is variable and scanty. It comes in two seasons, separated by months of dry weather. The "Big rains" fall from March to June, when the movement of the sun carries the belt of equatorial rains northward, the "Little rains" in November and December, when the sun returns to the south of the equator. The drought of the dry months is so serious, that it outweighs the good results of the rains. Vegetation, though abundant, is a stunted, scrub-like growth of an arid type. It has of necessity adjusted itself to the dry seasons rather than the humid portions of the year.

Exceptions to this general statement regarding rainfall are found along a narrow belt on the coast, where for a few miles inland the rains are fairly well distributed through the year by reason of the trade winds. Again, the loftier parts of the high plateau, those portions above 5,000 feet or so, are likely to receive more rain than the lower areas. The higher monadnocks of the plateau, which will be described later, receive quite abundant rains on their summit, even when comparatively little falls at the base. The higher portions of the plateau in the neighborhood of the Rift Valley are also well watered, insomuch that great forests grow there in tropical luxuriance, forming a marked contrast to the scrub-covered plains only a few miles away. Finally, the western slopes of the plateau receive the heaviest rainfall, about sixty inches per annum. This fact accounts in large part for the tremendous erosion which has taken place here and which has resulted in the development of the Victoria Nyanza Basin and the Nile Valley that opens from it to the north. This great precipitation is due apparently to moisture laden winds which follow up the Congo Basin from the Atlantic. As they are carried up the westward face of the plateau and over its lofty summits they precipitate their contents in the form of frequent showers.

This circumstance is apparently a large factor in maintaining the Nile and in determining the position of its valley.

Except in the regions just described, the rainfall is so scanty that no well-defined drainage systems can be maintained. Over the larger part of the plateau the streams are intermittent, flowing in wide, shallow valleys. There are no deep valleys, no cañons, no well-incised ravines, no trunk stream flowing permanently into the sea.

On the basis of the underlying terranes and their character, the plateau may be divided into a number of provinces. These provinces are long and comparatively narrow regions, extending in a northerly-southerly direction. The easternmost province, adjoining the coastal plain along the Indian ocean, is underlaid by sedimentary rocks. It

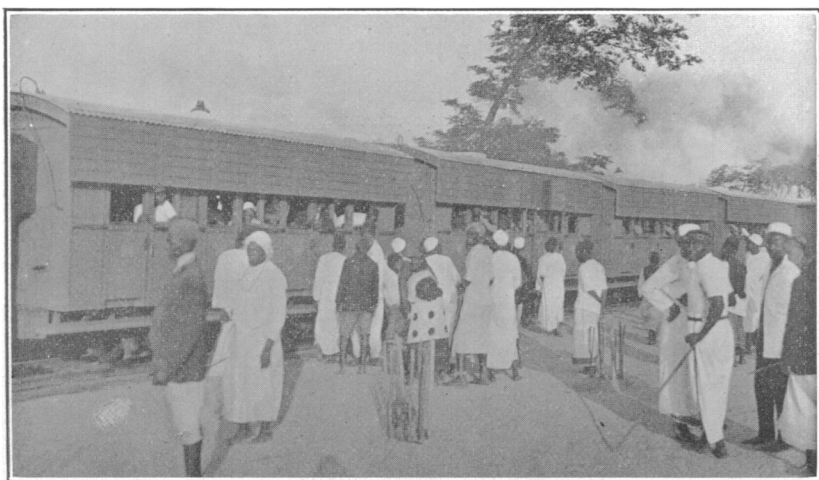


FIG. 3.—Swahilis at a railroad station.

represents an earlier coastal plain, which in late Jurassic time was uplifted from the sea and has been carried to its present altitude of several hundred feet by a number of oscillatory movements. The shales and sandstones of the area are easily eroded, and where there is much rainfall the region is thoroughly dissected, presenting numerous hills and valleys with notable relief.

As one proceeds westward, the shambas, or cultivated plots of cocoanut and banana, which are abundant in this seaward province, are left behind, and an open, park-like country follows. This region is gently rolling, and is covered with grass, a good pasture-land, where many flocks of native cattle and goats, and at times herds of game, are browsing. Still further westward, but nevertheless only

thirty miles from the sea, the rainfall begins to be less, and the flat, monotonous country is covered with thickets of scrub, uninhabited either by man or beast.

The next province is underlaid by a gneiss, which is the foundation rock of the whole plateau. This province is about 200 miles wide, and is a well-dissected area with numerous residual monadnocks, which rise to a height of 2,000 or 2,500 feet above the plain. These residuals usually trend parallel to the foliation of the gneiss, namely N.N.W.-S.S.E. Some of the larger monadnocks rise to the dignity of mountain ranges. They are lofty and massive features of the landscape, whose summits are sometimes clothed by forests among which dwell tribes of agricultural negroes. The plains below

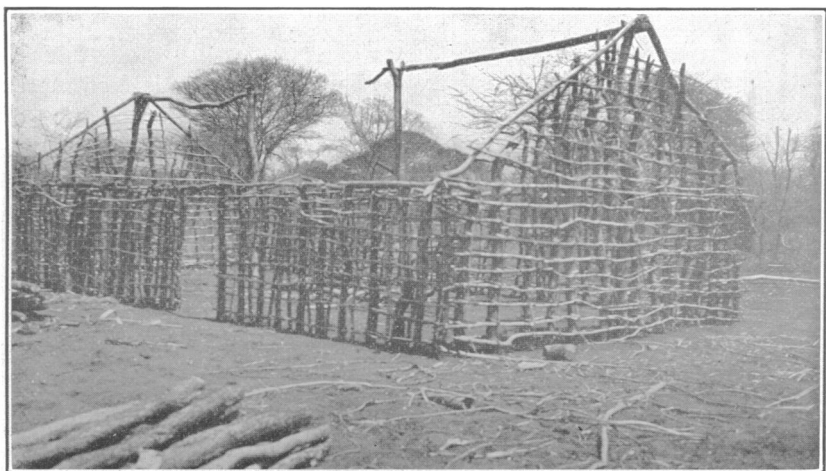


FIG. 4.—Native House in the Making. Makindu.

are flat, dry, débris-laden areas covered with thorny mimosas, Euphorbias and other types of arid vegetation. Numerous lava flows cover parts of the gneissic area, and are often of such great extent as to have a marked influence upon the topography. They frequently form angular, flat-topped buttes and mesas, while the gneissic remnants, that is, the monadnocks, are usually ridges with undulatory summits.

Toward the west the gneiss begins to be covered by vast and continuous lava flows from the Rift Valley, and their presence introduces another province, which may be called the Lava province. Originally the gneissic province extended from the ocean at least to the shores of Victoria Nyanza, but the portion now under discus-

sion is buried to a greater or less depth by lava. Some of the earlier flows were relatively thin and were guided largely by the original gneiss slopes. In such instances the lava barely masks the older surface, as is seen, for example, in such striking examples as the wide, flat expanses of the Kapiti and Athi plains. The Lava province is about 220 miles in width. Its middle portion is interrupted by that vast graben known as the Rift Valley. The lava seems to prevail throughout the entire Rift, the formation of that valley having caused in part the extravasation of the lava which has poured forth in such abundance on either side. If the lavas exist in such quantities throughout the length of the Rift, as they do in British East Africa, then this belt is by far the most extensive lava area on the globe.

THE RIFT VALLEY

The Rift Valley is a great trough fault which trends from north to south through the lava belt. It is the most stupendous feature of its kind on the globe. A first view of it from the edge of one of the escarpments is never to be forgotten as it spreads out before the observer in all its vastness and mystery. Its maximum depth below the plateau is about 2,000 feet. Its width from east to west, where the Uganda railroad crosses it, is about eighty miles, while the floor averages perhaps forty miles in width. The walls of the valley consist of a series of scarps and platforms, caused by the movements of great fault blocks which have pitched about in various directions in the effort to adjust themselves to the sinking crust. The number of scarps varies; sometimes there are but two, more commonly three, rarely four or more. The scarps are generally several hundred feet high and are somewhat modified by erosion, especially on the west side of the valley, where the rainfall is greater. The essential features of the valley sides are, however, due to the movements of the great fault blocks themselves. The blocks may reach a length of several miles and a width of a mile or so. The varying size of the blocks and their different inclinations introduce a diverse topography in which faulting is the sole factor. The upper scarps and platforms are covered with tropical forests, while the floor and the lower scarps, in marked contrast, are scantily covered with arid vegetation, so great is the difference in rainfall between the upper and lower wall of the valley. The floor of the Rift is made up of a series of basins, probably of tectonic origin, and containing in some cases alkaline lakes. The valley, as a whole, is an area of accumulation; no streams drain it outwardly and no débris passes from it. Great quantities

of detritus are swept into it from the encompassing walls in the form of fans, whose material is gradually spread out over the floor and results in its aggradation.

A lofty but relatively narrow divide separates the Rift from the Nile basin. As already indicated, this region is being attacked by erosion on its west face in a very marked way and is destined to disappear in a short time, geologically speaking. With the divide removed, the drainage of the Rift will be added to that of the Nile, its aridity will disappear and a large region become fitted for human occupation.

THE PEOPLE OF THE PLATEAU

For the most part the natives of the plateau have a less admixture of foreign blood than the coast natives, and are therefore of

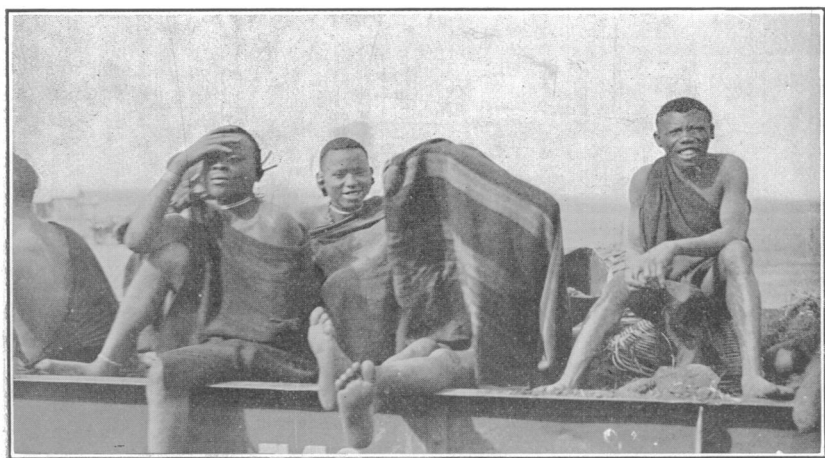


FIG. 5—Railroad Laborers on Work Train.

relatively pure negro stock. Generally, they are agriculturists and work the soil in their careless, improvident way. Over much of the plateau, with the exceptions already noted, the rainfall is too scanty and fluctuating to afford certainty in agricultural operations. Hence, there are large areas of the plateau which are uninhabited by permanent peoples; for the natives are forced to occupy the higher hills and the loftier parts of the plateau, where rainfall is more abundant. The Duruma tribe, for example, live on the higher summits of the Sagala hills southwest of Voi, and they manage to live in comfort, but would starve to death on the arid plains below. It is sometimes hinted by travelers that this withdrawal has been due to fear of

slave-raiders, but in any case they would be obliged to live on the heights, where the needful rainfall is sufficient. Thus, too, the Kikuyu tribe occupy the high plateau about Nairobi and to the westward, toward the Rift Valley, where rainfall is abundant and assures them the needed food supply. This family is typical of the agricultural or "Hoe-people" group. They cultivate shambas of a few acres in extent, upon which they raise corn, yams, manioc, millet, ground-nuts, bananas, etc. The women do much of the rough work, turning up the ground with their rude mattock-like hoes and harvesting the crop at the end. Generally, there is a baby fastened on each woman's back, its poor little head rolling too and fro with the motions of the mother as she bends to her arduous toil, while its face is

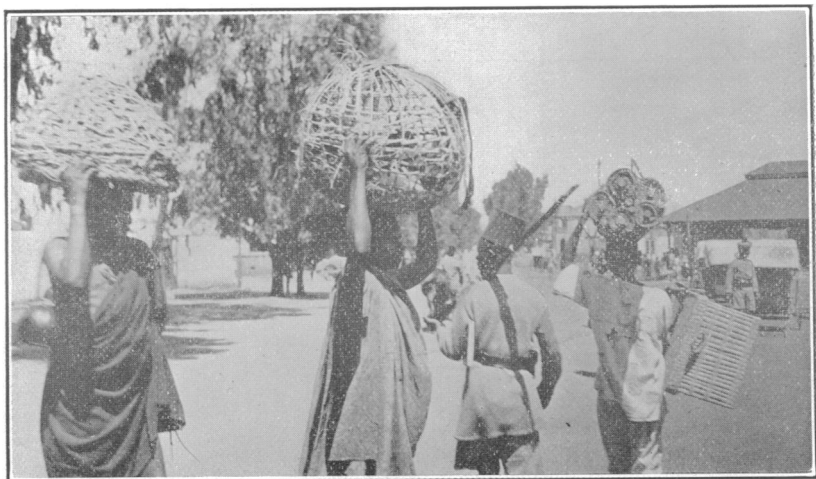


FIG. 6—Chicken Peddlers and a Native Policeman at Nairobi.

covered with dust, perspiration and flies. The harvested crop is frequently kept in small, grass-thatched granaries. As soon as the harvest is reaped the land is burned over to rid it of weeds and then planted almost immediately to a new crop.

There is little rotation of crops, and little fertilizing of the land, so that the soil is overworked and soon depleted. When it has lost its fertility and fails to produce an average crop, the native abandons his shamba and seeks new quarters. He may locate on the grasslands or he may clear another patch in the forest. Apparently this method of procedure has been carried on from time immemorial. Generation after generation has gone about depleting the land until large areas have become unfit for agricultural operations. The

gneissic nature of the underlying rock, over wide regions, also tends to make the soil acidic in character and somewhat infertile at best, and the native methods only add to its natural poverty.

The Kikuyu is very adaptable, he knows how to make use of branches, leaves or grass in forming a cover and he is able in short order to construct a bee hive hut, which will serve as a shelter while he needs it. Especially in the forest regions, numerous grass covered huts, singly or in groups, are to be seen. There is no opening into the hut except the low door, which compels crawling in on all fours. The Kikuyu is a master of circumstance in his own environment and is able to meet situations effectively, where a white man would be helpless. In a similar way he adjusts himself to the

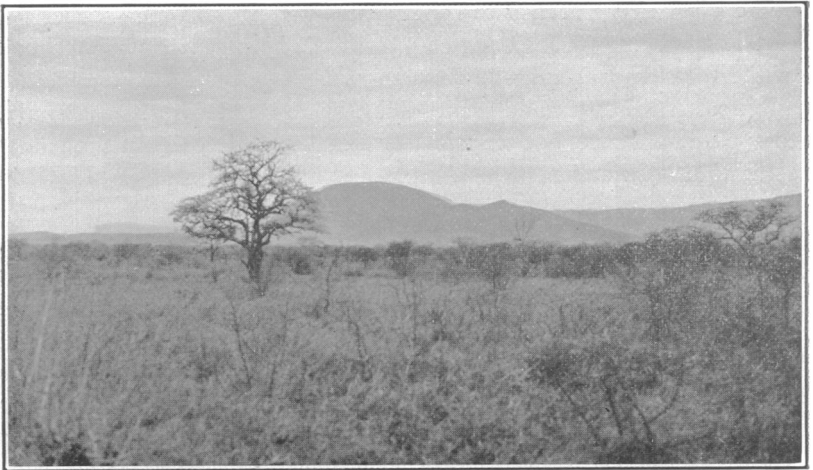


FIG. 7.—Gneiss Monadnock near Voi.

use of all types of foods, cooked or uncooked, clean or unclean; everything is grist that comes to his hopper. He will dig up a manioc root, knock off the dirt, gnaw off the cortex, spit it out, then proceed to eat the root in a raw state. On the other hand, he may make more elaborate preparations, he may utilize the native mortars to pound up corn or millet into a coarse meal, from which he may make a native bread or eat it in the form of mush. On the whole, he is one of the most industrious among African peoples.

The natives of the interior wear little clothing as a rule. When they have been converted to Mohammedanism they wear the long flowing robes of the Arabian, or if they are anglicized they may don the cast off knee-breeches and sweaters of their erstwhile masters.

The ordinary heathen, however, wears a piece of cotton cloth tied over one shoulder and allowed to drape itself about the body as it will. He daubs his cloth with grease and red clay to make it water proof. In the same way he smears over his body a mixture of tallow and clay, including head and hair. This coloring matter is rarely put on in the form of a pattern and is not intended, solely, at least, for purposes of ornament, but rather for the utilitarian object of protection from heat and insects.

Ear ornamentation is the most notable type of personal adornment among the natives of the plateau. Both the shell of the ear and the lobe are loaded down with all sorts of materials, wood, metal, paper, and stone. The lobe of the ear is pierced and then stretched until it will admit a stone weighing several ounces or even a jam can. Sticks and cigarettes are thrust into the holes bored around the shell of the ear. In walking through the country, especially in the neighborhood of the Uganda railroad, one frequently meets groups of these natives adorned in this way and armed with spears and clubs. Generally, they pass in silence, but occasionally some one will call out the native salutation "Hujambo Bwana," which being interpreted is "How do you do, master."

An entirely different type of native inhabits the Rift Valley, namely, the Masai, a Nilotic people, who have pushed their way up the Rift and wedged themselves in between the negro tribes of the uplands. The valley has been a great highway up which they could travel far from their origin. Like a river, this mixed people has swept southward, between banks of negroes as it were, on either hand.

The Masai are a pastoral race and the semi-arid valley is well adapted to their mode of life. Though they have negro blood in their veins, they are very unlike the surrounding agricultural Bantus. This is noticeable in their physique, habits of life, customs, modes of building and the like. For example, they do not build the grass hut of the upland negro, but use a type of house better fitted for a cattle raising people. First of all, a great enclosure of palings is constructed, within which they build their crude brush huts. These are wretched homes, much more exposed than the negro huts, and far inferior to them from the standpoint of construction, but they are well ventilated and the smoke freely escapes. Within the large enclosure the flocks are driven at night as a measure of protection against wild beasts. One of the common sights about these kraals in the morning hours is to see women busy at work repairing the fence or rebuilding decadent portions of it.

In their methods of ornamentation, the Masai tend to use skins, tails and horns of animals, as befits a pastoral people. They are not averse to the chase and with their long-headed iron spears are able to hold their own even with lion or leopard.

The Rift Valley has had a marked influence upon the distribution of this race, and the accident of a geological convulsion has permitted them to go far afield and to be brought closely into contact with a contrasting people. It is rarely the case that conditions will permit two peoples to be brought into such close contact unless one is dispossessing the other and pushing its way onward at the expense of the other. Here in East Africa these two unlike races dwell side by side because each has its own appropriate environment. They

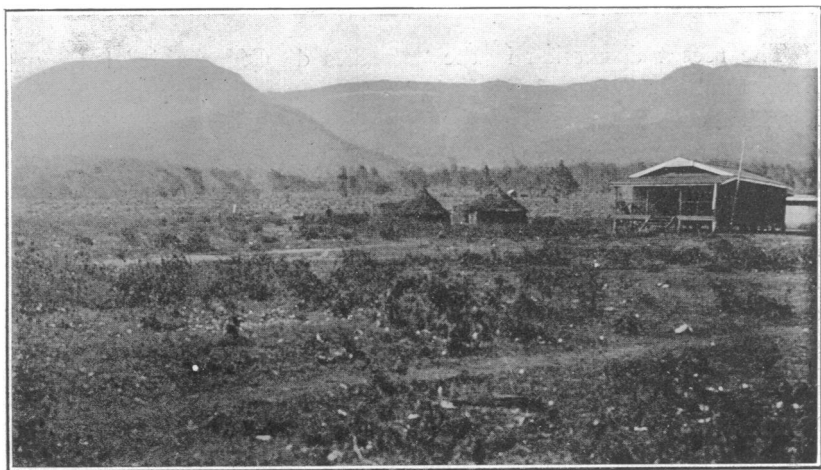


FIG. 8—Fault Escarpments. Rift Valley.

do not need to invade each other's territory since a geological accident has caused the juxtaposition of two regions in which unlike peoples can dwell without interfering seriously with each other. In some cases, as among the Lumbwa, the Masai have overflowed the banks of the valley and settled on the higher plateau, but these are exceptional instances.

Within the Victoria Nyanza basin, to the west of the Rift Valley, conditions again favor agriculture, and here dwell numerous tribes who make their living from the soil. Some of them, like the Kavirondo, are unique beyond degree, well worthy of study from the viewpoint of the geographer, both in their relation to the land and in regard to their utilization of the products which nature has offered

them. These peoples, like all those on the great African plateau, illustrate anew the truth, that all aborigines are adjusted to their surroundings as accurately and efficiently as the fauna and flora, in whose midst they dwell. They are the survivors who have proven their fitness to live and to people the land.

TOPOLOGY, TOPOGRAPHY AND TOPOMETRY

BY

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The recent discussion in the "Annales de Géographie" between Prof. Paul Girardin and Général Berthaut on the concepts of Topology, Topography, and Topometry,* following upon the publication of Berthaut's two-volume work entitled "Topologie," seems of sufficient importance to deserve being brought to the attention of American geographers, topographers, and engineers. In this country we still content ourselves with the single term "topography," applying the same rather loosely, and in some respects inaptly, to different classes of work. The truth is that we have not yet come to separate sharply in our minds the three closely allied concepts for which the French have already for several years found it desirable to employ different terms.

The topographic map work carried on in this country, principally by the government, is recognizedly of a high order, and appreciation of its merit has been repeatedly expressed by European topographers. Nevertheless, the fact remains that we have in the United States no distinct "topographic profession," nor anything resembling a formulated science of topography. With us, topographic mapping, however excellent its results, is little more than a specialized class of surveying and drafting, and our topographers do not, on the whole, lay claim to being anything further than specially trained surveyors and draftsmen. To those familiar with the trend of geologic, and more especially of geographic science, in this country, however, it must be clear that if the topographer intends in the future to keep step with the geologist and the geographer; if the mapmaker's work

* Paul Girardin, *Topologie et Topographie*. A propos de l'ouvrage de Gén. Berthaut, *Ann. de Géogr.* Vol. XX, Nov. 15, 1911, pp. 385-395.

Gén. Berthaut, *Topologie, Topographie et Topométrie*, *ibid.*, Vol. XXI, Jan. 15, 1912, pp. 73-80.